TSUKERBERG, B. I.

28(5)
AUTHORS: Brut', B. I., Zakhov, G. S., Kulagin, V. D., Magula, V. E., Rasskazov, Ya. V., Tsukerberg, B. I.

SOV/32-25-6-36/44

TITLE: Determination of the Internal Stresses According to the Method of the Control Points

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 6, pp 1003-1006 (USSR)

ABSTRACT: The most reliable determination methods of the absolute internal stresses of sheet metal constructions are the trepanation methods based on cutting out smaller sections of the structure. The method described in this article is of this type and is suitable for the determination of stresses of the first order which are of the greatest importance in large sheet metal structures. The designed instrument consists of an optical comparator and a special puncher (Fig 1). The puncher is a solid disk of steel with three cones arranged to form a delta-figure and made of a hard alloy (from the Rockwell instrument). Under a 2-3 kg pressure three microscopical imprints are made on the surface to be investigated and on the standard sample. The latter is made of the same material as that of the tested sheet metal structure and both are kept at the same temperature during several hours. Then they cut out strips (90-100 mm wide) from the sheet metal structure (the stresses of the first order developed at cutting-out are removed) and the distances between the imprints on the strip and on the standard samples are measured in three directions with the optical comparator. The comparison with the standard sample is necessary because of the temperature deformation of the metal. The distances between the imprints are indirectly measured (Fig 2) and the dimension and direction of the stresses is determined by means of an equation. This method was used for stress determination on the large seagoing vessels and can also be applied at reservoirs, bridges, and other structures. There are 2 figures.

Card 1/2

Card 2/2

SOV/122-59-5-11/32

AUTHOR: Tsukerberg, B.I., Engineer

TITLE: Selection of an Efficient Shape of the Nozzle in an Electric Metallising Gun (Vybor ratsional'noy formy sopla elektrometallizatora)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 36-38 (USSR)

ABSTRACT: Present day Russian metallising guns (types EM-3A and EM-6) use cylindrical nozzles which allow only an increase of pressure as a method of raising the particle velocity. Even so, this velocity is limited to a maximum value between 120 and 250 m/sec. To increase this velocity, cylindrical, convergent, stepped and divergent nozzles (Fig 1) were tested and compared. Rather than measuring the particle speed, the properties of the resulting metallised layer were used as a criterion. Two hollow cylindrical specimens, each tapped at one end, were bolted together and the cylindrical surface was metallised, after which the central bolt was removed and end fittings were screwed in to fit into a tensile machine so that the metallised coat at the butt joint could be pulled on its own. Only the cylindrical and divergent nozzles

Card 1/2

SOV/122-59-5-11/32

AUTHOR: Tsukerberg, B.I., Engineer

TITLE: Selection of an Efficient Shape of the Nozzle in an Electric Metallising Gun (Vybor ratsional'noy formy sopla elektrometallizatora)

PERIODICAL: Vestnik mashinostroyeniya, 1959, Nr 5, pp 36-38 (USSR)

ABSTRACT: Present day Russian metallising guns (types EM-3A and EM-6) use cylindrical nozzles which allow only an increase of pressure as a method of raising the particle velocity. Even so, this velocity is limited to a maximum value between 120 and 250 m/sec. To increase this velocity, cylindrical, convergent, stepped and divergent nozzles (Fig 1) were tested and compared. Rather than measuring the particle speed, the properties of the resulting metallised layer were used as a criterion. Two hollow cylindrical specimens, each tapped at one end, were bolted together and the cylindrical surface was metallised, after which the central bolt was removed and end fittings were screwed in to fit into a tensile machine so that the metallised coat at the butt joint could be pulled on its own. Only the cylindrical and divergent nozzles

Card 1/2

Selection of an Efficient Shape of the Nozzle in an Electric Metallising Gun

proved promising and were examined in detail. The divergent nozzles gave a tensile strength by about 12% greater than the cylindrical nozzle. The microhardness with divergent nozzles was about 30% higher. The divergent nozzle yielded a smaller spray torch angle. There are 2 figures and 3 tables.

Card 2/2